



Oregon

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November 12, 2009

Mr. Christopher Cora
US Environmental Protection Agency
Region 10
1200 Sixth Avenue
Seattle WA 98101

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Environmental
Cleanup Office

RE: Oregon DEQ Comments on Draft Human Health Risk Assessment and Ecological Risk Assessment Reports, both dated October 9, 2009

Dear Mr. Cora:

The Department of Environmental Quality (DEQ) has reviewed the draft reports on Human Health Risk Assessment and Ecological Risk Assessment for the Harbor Oil Superfund site, located in north Portland. The following are comments resulting from DEQ review of the reports.

GENERAL COMMENTS – HHRA AND/OR ERA

1. Include a brief discussion to summarize site geology/hydrogeology, the locality of the facility and whether the site is adequately characterized. Locality of the facility includes nature and extent of contamination, land and water uses and potentially exposed populations. In this regard, North Lake should be included.
2. In Oregon DEQ risk assessment guidance, for both human and ecological risk, the process for screening background concentrations is described as limited to those substances that are naturally-occurring and does not include anthropogenic organic hazardous substances. In Oregon Administrative Rule (OAR 340-122-0115(8) background is defined as: "the concentration of hazardous substance, if any, existing in the environment in the location of the facility before the occurrence of any past or present release or releases." DEQ guidance for risk assessment limits screening for background concentrations to those substances that are naturally-occurring. When naturally-occurring substances exceed agreed upon acceptable background concentrations, risk would be calculated without subtracting the background estimate. Notwithstanding anthropogenic organic hazardous substances as outside the statutory definition of background and risk assessment screening guidance, DEQ does not agree that polychlorinated biphenyls (PCBs) or pesticides in the Columbia Slough, St. Johns Landfill and Fairview Lake data sets are appropriate comparisons for Force Lake because: (1) the substances detected in the Columbia Slough are believed to be related to hazardous substance releases from a variety of sources, and (2) they are not within the locality of facility for Force Lake.
2. DEQ cannot verify the adequacy of site characterization or replicate the calculation of exposure point concentrations (EPCs) that are shown on Table 3-21 because the process used to group samples by media and receptor is not transparent. There should be figure(s) showing samples used in each grouping that are referenced to tabulated raw data.
3. The stormwater pathway has not explicitly been addressed. Assessment of this pathway is now required for all sites that discharge into the Columbia Slough. Some of the highest concentration of site constituents is in the wetlands and uplands but the potential for migration from wetlands and

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upland areas to Force Lake is not addressed. For human health, site soil appears to be a primary source of risk potential in addition to accumulation in fish tissue. This also needs to be considered from a source control perspective, that is, erosion of contaminated soil into wetlands and Force Lake.

4. Risks from constituents in the wetlands are estimated for terrestrial receptors, but not aquatic receptors. Since at least portions of this area are periodically inundated, estimation of aquatic risks is appropriate.
5. The extent of NAPL on groundwater should be delineated and shown on a figure. Potential migration of NAPL and dissolved constituents from the upland to Force Lake via the groundwater to surface water pathway should be assessed.

SPECIFIC COMMENTS - HHRA

6. ES.1. The third and fourth sentences of this section refer to “this ERA”, instead of HHRA.
7. ES.4, page ES-9. The last sentences in this section indicate uncertainty in the future worker scenario in “...the assumption that the gravel layer that currently covers the Facility would be removed...” DEQ guidance for risk assessment estimates risk in the absence of any remedial measures. The purpose would be, at a minimum, to support risk management decisions which in the case of the Harbor Oil site may include deed restrictions and maintenance of an existing protective surfacing (such as the site gravel surface). Conducting a risk assessment in this manner is not intended to assume the gravel surfacing would actually be removed.
8. Section 1.1. The text indicates the study area encompasses “...the adjacent wetland to the south and west of Force Lake...” This should be south and west of the main facility.
9. Section 1.2. Text on page 2, fifth paragraph indicates Force Lake is 200 feet in diameter, when Figure 1-1 suggests the lake is closer to a minimum of 500 feet in diameter.
10. Section 2.2.4. Clarify the last statement under the Total PCBs bullet in relation to the total PCB values presented in the text. The Total TPH bullet indicates that gasoline fractions were included in the calculated total TPH values, and then the last sentence indicates that gasoline fractions were not included. Please clarify what the total TPH represents.
11. Section 2.3.1. If migration of contamination to North Lake is limited (as opposed to did not extend to North Lake) then a brief presentation of North Lake data should be included as North Lake would be in the locality of the facility.
12. Section 3.1 and Figure 3-1. The description of scenarios is somewhat confusing. The “future outdoor worker” is analogous to a typical occupational worker and would be the same whether current or future, in the absence of the gravel surfacing. Because there is risk if the gravel were not in place indicates that consideration is needed for risk management to prevent exposure to soil. The “industrial/commercial worker” is really evaluating vapor intrusion into indoor air and should be titled as such. DEQ considers both current and future risk; therefore this scenario should evaluate the potential risk of vapor intrusion to indoor air for the entire site and not limited to existing buildings.
13. Section 3.1.1; Appendix D. DEQ has not used, and does not have a copy, of the RISC software and therefore cannot verify the risk estimates for the vapor inhalation pathway. DEQ guidance calls for addressing the vapor intrusion pathway by comparing groundwater and soil concentrations to default RBCs. If exceeded, soil vapor measurements would be used to assess risk. Confirmation

that soil and groundwater concentrations are below relevant criteria on relevant spatial scales requires clarification.

14. Section 3.1.2. The data for the soil stockpile and soil berms was included in the “future outdoor” worker scenario. The soil stockpile and the berms are not covered with gravel and are therefore accessible to potential exposure. The future outdoor scenario should be simply occupational worker.
15. Section 3.1.3. The evaluation of vapor intrusion to indoor air evaluates current exposure but should also evaluate future exposure for potential future site development.
16. Section 3.2; Figure 3-2. The beginning of the flow chart should first ask whether an analyte was ever detected, then whether the analyte has a RBC to avoid excluding detected substances. Clarify the pathways to/from the boxes “is analyte detected in <10% of samples” and “are RLs >RBC in more than 10% of samples”. It would seem that if an analyte is detected in more than 10% of samples it would screen in, not out as shown. It would also seem that if the RLs are more than RBCs in more than 10% of samples that begins to represent a data gap, not screening out analytes. Additionally, the detection frequency screening step in DEQ guidance is 5% as opposed to 10% and requires adequate site characterization. It is unclear that a sufficient number of analyses have been performed to support a detection frequency screening step (e.g., 20 samples per medium & sampling unit). The figure shows screening based on maximum detected concentrations but this may not be appropriate if the number of analyses is not adequate to characterize the medium or spatial area of the unit sampled. Cross-referencing a figure and table showing the location, number of analyses and detections with summary statistics would be helpful to demonstration of adequacy and representativeness of the data set.
17. Section 3.2.1.1. Other Superfund sites in Oregon, in particular the Portland Harbor Site, screen groundwater and surface water data against maximum contaminant levels (MCLs). MCLs should be used or a discussion of rationale for not using MCLs presented.
18. Section 3.2.1.2. Clarify why EPA regional screening levels are not included for occupational exposure to soil. U.S. EPA presents Regional Screening Levels (RSLs) for an extensive list of substances. Therefore, if DEQ does not have an RBC for a particular hazardous substance, the EPA RSL should be used, if available.
19. Section 3.2.1.3. DEQ Risk-Based Decision Making guidance includes an urban resident which is still more conservative than recreational exposure, but less conservative than residential screening levels.
20. Section 3.2.1.5. Provide a table with the fish RBCs and source reference(s). EPA’s April 2009 fish tissue screening tables from the EPA web site do not appear to show the actual RBCs.
21. Section 3.3; Tables 3-12 through 3-16. The numbers presenting the noncancer averaging time cited from RAGs Part A (10,950 days) is equivalent to 30 years, and appears to be in error; it should match the exposure duration of 25 years in occupational scenarios (9,125 days).
22. Section 3.3; Table 3-14 through Table 3-17. The incremental calculation of exposure duration (ED) of 1 year over the body weight of each age class is more complex than necessary. Computationally the sum of these ratios is identical to the ratio of six over the arithmetic mean of the body weights of all six age classes. Please clarify the purpose of the more complex method.
23. Section 3.3.5 and Table 3-21. This table needs to be cross referenced to a figure showing how samples were aggregated and to the raw data so that EPC calculations can be verified.

24. Sections 5.3.1 and 5.3.2; Tables 5-6 and 5-9. Oregon risk guidance does not correct risk estimates for anthropogenic background.
25. Section 5.3.3; Tables 5-10 and 5-11. The vapor evaluation appears to be consistent with Oregon guidance. If maximum or appropriate RME average concentrations are below RBCs then no further vapor investigation is required. However, reference to a map showing sample locations and data used to calculate the EPCs is needed to verify the appropriateness of the EPC and the adequacy of the site data. In addition, evaluation of exposure to other portions of the site in the case of potential future site development should be presented.
26. Section 5.5. For consistency in understanding this presentation, either cite exceed/not exceed or present the actual calculated risk for each of the bulleted RME scenarios.
27. Section 6.1.5 and Table 6-7. The analysis presented in this risk assessment suggests that it is likely that those fish that are present in Force Lake will have some PCBs in tissue, which are then available for consumption by aquatic dependent wildlife nesting nearby and the recreational fishers that might use the lake. When assessing risk associated with the fish consumption pathway at other sites along the Columbia Slough, such as Johnson Lake, DEQ has previously relied on consumption rates generated by a 1996 study by Adolphson Associates. The Adolphson study generated an average fish ingestion rate of 24 g/day, assuming that 50% of the total weight of the fish caught by anglers surveyed was consumed, with an upper 90% confidence level of 45 g/day. DEQ recommended use of the 45 g/day, adjusted by a proportion of presumed use. The intake rate assumed for this investigation is generally comparable to that used from Johnson Lake, and is acceptable for risk estimation.
28. Section 6.3.2. Petroleum hydrocarbons are significant to this site, however, neither TPH nor TPH fractions are selected as COPCs and exceedances of TPH in the gasoline range are not addressed. Fraction-specific RBCs could easily be derived by toxicity values readily available from ORNL and compared to concentrations of each fraction. This approach would also address weathering that has occurred. In addition, this or another section, should discuss the potential presence of non-aqueous phase liquid and potential hot spots. Table 6-19 indicates concentrations of TPH in the diesel and motor oil range in excess of 10,000 mg/kg, which is the threshold for consideration of product mobility cited in the DEQ Risk-Based Decision Making guidance. The presence of NAPL may constitute a hot spot of contamination.
29. Section 7.4. This section indicates that the highest concentrations of DDT were in the central and southern boundary portions of the facility. This is counterintuitive to the assertion that DDT was not used on site and originates from other offsite areas.

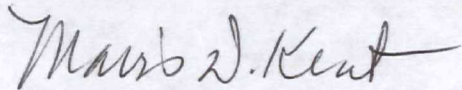
SPECIFIC COMMENTS – ERA

30. ES; Sediment Invertebrate Risk. Based on the number and type of exceedances in Force Lake, sediment bioassays are warranted to assess the potential for toxicity. Some testing of wetland soil samples may also be warranted as portions of the wetland are inundated during portions of the year.
31. Section 2.4.2. Provide maps showing how data are grouped for each ecological receptor with cross reference to data tables so that the appropriateness of data used and calculations can be verified.
32. Section 2.5.2. Clarify why only invertebrate thresholds were used to screen soil. In many cases, the direct contact RBC for birds is the most sensitive (lead, for example). It is assumed that insectivorous birds will not directly contact soil as shown on Figure 2-2. This would suggest that the site is either ruderal or wetland and not habitat for insectivorous birds.

33. Section 2.5.3. Clarify whether EPA is in agreement with use of the toxicity reference values presented in the ERA.
34. Section 5.1.1.1; Table 5-1. DEQ recommends some sediment bioassays to test for toxicity, based on the results of comparison to numeric criteria. DDT metabolites exceed probable effect concentrations (PECs), and the combination of analytes in sediment, including TPH, is difficult to assess without direct measurements using toxicity bioassays.
35. Section 5.1.1.2; Potential for Soil Erosion into Force Lake; Table 5-6. Stormwater source control measures are warranted to prevent further migration of site constituents from upland soil to the wetland and/or Force Lake. These source control measures could be combined with remedial action to address the predicted human health risks in the uplands.
36. Section 5.1.2.3. DEQ does not rely on background-corrected risk conclusions.
37. Section 5.2. Clarify whether the groundwater to surface water pathway is a complete pathway, and whether COI in shallow groundwater are migrating towards or into Force Lake. In addition, the wetlands are not evaluated for aquatic ecological risk to benthic invertebrates or bioaccumulation to higher trophic receptors or amphibians. Since portions of the wetlands are submerged for a portion of the year, this pathway needs to be considered.
38. Section 6.0. Based on risk assessment findings, remedial actions and/or additional assessment including rodent and fish tissue sampling should be considered for PCBs and pesticides.

If you would like to discuss any of the above comments in more detail please contact me at 503-667-8414 x55008 or at kent.mavis.d@deq.state.or.us.

Sincerely,



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